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ABSTRACT

A multi-method strategy was developed and applied to the assessment of mental health need in the catchment area of a small community mental health center. Social indicators including census data and health and welfare statistics were used to make an initial needs assessment. These findings were validated and supplemented through a survey of personnel in agencies dealing with community problems, and an analysis of statistics on clients and services delivered by the mental health center. Results indicated a significant convergence among the three strategies. A secondary analysis revealed that the survey of community perceptions contributed significantly, above and beyond social indicators, to the prediction of local mental health need. Finally, a summative index of mental health need, based on all three methodologies, utilized in the identification of high need census tracts. In conclusion, the value of a coordinated needs assessment strategy based upon at least two independent methodologies has been demonstrated. While local mental health centers may profit greatly from the readily available Mental Health Demographic Profile data, community surveys appear to make significant additional contributions, especially in the common situation where census information is somewhat dated. (Author/JLL)

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Assessing Local Mental Health Need: A Multi-Method Strategy

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Abstract

A multi-method strategy was developed and applied to the assessment of mental health need in the catchment area of a small community mental health center. Social indicators including census data and health and welfare statistics were used to make an initial needs assessment. These findings were validated and supplemented through (1) a survey of personnel in agencies dealing with community problems, and (2) an analysis of statistics on clients and services delivered by the mental health center. Results indicated a significant convergence among the three strategies.

A secondary analysis revealed that the survey of community perceptions contributed significantly, above and beyond social indicators, to the prediction of local mental health need. Finally, a summative index of mental health need, based on all three methodologies, was utilized in the identification of high need census tracts.

Assessing Local Mental Health Need:

A Multi-Method Strategy

It has been argued that efforts at mental health needs assessment should draw upon a variety of different but convergent methodologies (Siegel, Attkisson, & Cohn, 1977). Specifically, needs assessment based on social indicators such as census statistics should be supplemented by: (1) the perceptions of community members as to areas with mental health need, and (2) statistics on services already delivered by the mental health center which are relevant to needs assessment.

In response to this prescription, the present investigation first examined the degree of convergence among three distinct needs assessment techniques. All three phases of this multi-method needs assessment addressed the issues of which areas in the community have the greatest mental health need. The first phase utilized social indicators, particularly census data, to answer these questions. The second and third phases were intended to validate the social indicators results and utilized community agency personnel perceptions of mental health need, and data on the services provided by the mental health center, respectively.

A second issue examined was the relative contribution of two of the needs assessment techniques in predicting mental health need. Of primary interest here was the contribution of qualitative information (a community perception survey) over and above the more widely used quantitatively based types of information (e.g., social indicators) in understanding local mental health need. Finally, a procedure for obtaining a "best estimate" of mental health - namely, a "summative" index - was proposed.

Method

The initial phase of this community wide assessment of mental health needs involved the use of selected social indicators. Working with a data base comprised of Mental Health Demographic Profile System data, Department of Public Health data, Department of Public Social Services data, mental health need was examined at the census tract level (N=35). The criterion variable -- mental health need -- was a composite of catchment area incidence and service statistics (e.g., mental health units delivered, state hospital admissions, incidence of different diagnostic categories, etc.). The initial pool of 250 variables was reduced to a manageable size using the following procedure: (a) a priori clustering of variables into dimensions relevant to mental health need (e.g., poverty level, family characteristics, education), (b) deletion of variables with incomplete or missing data; and (c) selection of representative variables within each dimension such that chosen variables in each dimension had high intercorrelations and also high zero order correlations with the criterion. The best predictors of mental health need for <u>each</u> dimension were determined by a series of multiple regression analyses. The final overall regression equation used to generate a mental health need score was the following:

Mental Health Need = Unemployment (.70) + food stamp recipients (.22) Population black (.15) + female headed households with children in poverty (.30) + low occupational status; males (.09) + overcrowding (.20).

Entering data on this final set of variables into the overall linear equation produced a "mental health need score" for each census tract. Based on this score, the census tracts were ranked on their level of mental health need.

In conjunction with the development of a social indicators index of mental health need, a survey was administered to the personnel of a sample of agencies (N=13) which have contact with the community and deal with community problems. Surveys were administered to school districts, police departments, public social services agencies, probation, and a number of agencies dealing with special groups such as ethnic minorities and juvenile delinquents. Also a "snowballing" sampling technique was used, whereby each respondent indicated other agencies which should receive the survey, and those agencies mentioned most frequently were contacted. For each agency, top administrators were asked to enumerate those groups of employees who were likely to possess the desired information, and surveys were sent to each employee identified.

The survey was administered in conjunction with a map of the catchment area. Respondents were asked first to outline those areas on the map with which they had some direct personal experience. Respondents indicated the particular location, within the general area with which they were familiar, where the most serious community problems occurred. For this particular location, ratings of seriousness were made on 16 community problems (e.g., mental/emotional, alcohol/drug, child abuse and neglect, crime and delinquency, etc.). Finally, respondents had the option of pinpointing any other locations, within the regions they had outlined, where they felt serious community problems existed.

The third component of this needs assessment was an analysis of data on clients and services delivered by the mental health center. Three types of service data were analysed. For all patients (N=2150) of the mental health center basic demographic information, diagnosis, and initial and final impairment ratings were collected on a Service Assessment Summary (SAS) form.

Second, two ancillary forms of service utilization data were collected: (1) frequency and nature of emergency phone calls (N=323) received by the mental health center, and (2) frequency of involuntary hospitalizations (N=241) processed through the center. Geo-coding data from all three sources by census tract provided a direct comparison between the Social Indicators, Community Survey, and Service Utilization needs assessment methodologies.

Results

To assess the degree of convergence among the needs assessment techniques, three types of correlation coefficients were calculated: (a) a measure of the overall degree of association (Kendall's Coefficient of Concordance, W); (b) a nonparametric rank order correlation (Spearman Rank Order, r_s); and (c) a parametric product moment correlation (Pearson r).

Each of the five needs assessment techniques (Social Indicators, Community Perceptions, and the three components of the Service Utilization cluster) resulted in a "mental health need" ranking of the 35 census tracts comprising the catchment area. These five sets of rankings were subjected to a statistical test which allows for an analysis of the degree of similarity among the data sets.

Kendall's W for all five techniques was highly significant, indicating a strong degree of convergence among the five "mental health need" rankings, W (34) = .76, $p < .001$. However, an examination of the individual methods revealed the possibility of confounding due to possible overlap of information in the data sources used for the Service Assessment Summary, Emergency Call and Involuntary Hospitalization projects. The high correlations between SAS, and the Emergency Call and Involuntary Hospitalization data indicated

indicated these methods are tapping a common dimension - namely: service utilization, r_s = .80, $p < .001$ and r_s = .82, $p < .001$, respectively. (See Table 1). Because of this high degree of overlap, a second statistical test of convergence was applied to a data set comprised of the Social Indicators, Community Perceptions rankings, and the best representative of the Service Utilization statistics - the Service Assessment Summary data.

The Kendall's W for this revised data set (consisting of Social Indicators, Community Perceptions and SAS data) was also significant, indicating an even higher degree of convergence, $W = .77$, $p < .001$. As a result of this finding, all future analyses used the SAS data only.

As might be expected, (See Table 1) there were somewhat lower, though significant, correlations between the two quantitative methods - namely, Social Indicators and SAS - and the subjectively based Community Perceptions survey, r_s = .52, $p < .001$ and r_s = .68, $p < .001$, respectively. Finally results demonstrated a strong relationship between the Social Indicators procedure and the SAS technique, $r_s = .75$, $p < .001$. The intercorrelation matrix of the methodologies using the more conservative Pearson r is presented in Table 2.

A multiple regression analysis was undertaken to assess the relative efficacy of two of the needs assessment techniques (the Social Indicators procedure and the Community Perceptions survey) in predicting mental health need. These two variables were entered hierarchically into a regression equation in order to determine their individual contribution to the prediction of our operationalization of mental health need.[2] The overall relationship between the criterion (mental health need) and the two needs assessment techniques was highly significant, $R^2 = .48$, $F(2,31) = 22.02$, $p < .001$. Turning to the hierarchical analysis, the first step, Social Indicators, made a significant contribution to the prediction of mental health need, $R^2 = .47$, $F(1,32) = 28.75$; $p < .001$. The Community Perception survey was

entered into the equation second, and explained a significant amount of the variance in mental health need over and above the first predictor - Social Indicators, $R^2_{change} = .11, F\ (2,31) = 8.46, p < .01$. (See Table 3).

Finally, a summative need index was derived by adding the census tract rankings across the three techniques. Those tracts having the highest summative index score are presented in Figure 1, a map of the catchment area.

Discussion

The major issue addressed in this study was whether three independent needs assessment strategies would converge in terms of identification of particular census tracts having high mental health needs. The ranking of census tracts based on Service Assessment Summary data is significantly correlated with the ranking based on Social Indicators, and the ranking based on the Community Perceptions survey. Less relationship is shown between the Social Indicator approach and the Community Perceptions survey. From these correlations, as well as from Kendall's Coefficient of Concordance (which measures the amount of overall agreement among the three sets of rankings) it is clear that there is a strong convergence among the three needs assessment approaches. This degree of interrelationship constitutes significant empirical evidence for the convergent validity of each of the independent assessment strategies.

Germane to the issue of convergent validity, Siegel (1956) argues that the best estimate of the "true" order of a set of objects is the order of the sum of ranks produced by several independent raters, provided that the overall Kendall's W is significant. In this study the ranks produced by each assessment strategy were added to from a summative index, and those census tracts ranked highest on this index were chosen as areas with the greatest

mental health need. The demonstrated convergence among the three assessment methodologies lends confidence to the idea that these are indeed the census tracts with the greatest mental health need.

Although the high degree of convergence among the needs assessment methodologies strengthened the ability to target areas with the greatest mental health need, instances of divergence on a case-by-case basis also proved useful for planning decisions. For example, a case-by-case comparison of the various techniques yielded a discrepancy between the Social Indicators, Community Perceptions, and Service Assessment Summary methodologies. Specifically, one census tract which ranked high in mental health need with the Social Indicators and the Community Perceptions methodologies was ranked low using the SAS technique. The existence of this discrepancy suggests this census tract is not receiving the mental health services it needs and appropriate adjustments in program emphasis should be made.

A second issue addressed in this study was the relative contribution that the different methodologies could make to the needs assessment efforts of a small community mental health center. A major obstacle in investigating this issue was the operationalization of the criterion variable of mental health need. The most comprehensive measure of need in the present data was the Service Assessment Summary scores for each census tract - essentially a count of the number of patients from each tract who contact the mental health center (See Footnote 2). This measure correlated .80 with the earlier criterion used in the generation of the Social Indicators Index of Mental Health Need, but is more comprehensive in that the data is more current and covers a broader time span.

Once the SAS data was chosen as the operationalization of mental health need, the issue of relative utility became a question of which assessment

strategy - Social Indicators or Community Perceptions survey - did the best job of predicting mental health need. The relative contribution of social indicators was assessed first, since this data is readily available to all mental health centers through the Mental Health Demographic Profile System. Social indicators accounted for a significant amount of the variance in mental health need. An interesting finding was that the Community Survey strategy, which was relatively independent of the Social Indicators approach, contributed a unique amount of information to the overall prediction of need. These results demonstrate that social indicators are indeed useful for an initial assessment of need, but a direct survey of community perceptions adds unique information to the social indicators base and makes possible a more precise prediction.

Aside from the above-mentioned difficulty with finding the best operationalization of mental health need, another limitation of the present study is the datedness of the 1970 census data. It is almost certain that more current census data would increase the power of the Social Indicators approach, but it is unlikely that this would make surveys unnecessary, since they seem to be tapping independent data, as evidenced by their low inter-correlation. Without up-to-date census data, supplementing the social indicators data through a community survey seems essential.

In conclusion, this study demonstrates the value of a coordinated needs assessment strategy based upon at least two independent methodologies. While local mental health centers may profit greatly from the readily available Mental Health Demographic Profile data, community surveys appear to make significant additional contributions, especially in the common situation where census information is somewhat dated.

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Footnotes

1. Authorship on this paper is in alphabetical order.

2. The operationalization of the criterion variable (local mental health need) for this analysis utilized SAS data rather than the County Health incidence and service statistics used as the criterion in generating the Social Indicators Index of Mental Health Need. The rationale for this criterion variable shift is three-fold:

   (1) the SAS data and the County Health incidence and service statistics represent the independent collection of essentially the same information, and hence, there is a very high correlation between the SAS data and the County Health incidence and service statistics, $r = .80$, $p < .001$. (See Table 2).

   (2) The SAS data covers a broader time span than the County Health incidence and service statistics.

   (3) The SAS data is current whereas the County Health incidence and service statistics are somewhat dated.

   Based upon these considerations the authors determined that the SAS data represented a picture of current mental health need, in the center's catchment area equal to, if not more accurate than, that which is provided by the somewhat dated County Health incidence and service statistics.

TABLE 1

Intercorrelations (Spearman Rank Order)

Among the five Needs Assessment

Methodologies

METHOD	1	2	3	4	5
1. Social Indicators					
2. Community Perception Survey	.52 (.001)				
3. Services Assessment Summary (SAS)	.75 (.001)	.68 (.001)			
4. Emergency Calls	.68 (.001)	.59 (.001)	.80 (.001)		
5. Involuntary Hospitalizations	.72 (.001)	.73 (.001)	.82 (.001)	.72 (.001)	

TABLE 2

Intercorrelations (Pearson)

Among the five Needs Assessment

Methodologies

METHOD	1	2	3	4	5	6
1. Social Indicators						
2. Community Perception Survey	.29					
3. Service Assessment Summary (SAS)	.68	.52				
4. Emergency Calls	.64	.43	.76			
5. Involuntary Hopsitalizations	.70	.56	.77	.73		
6. Criterion	.59	.56	.80	.73	.61	

TABLE 3

Regression Analysis of Needs

Assessment Methodologies

VARIABLE	R	R^2	R^2_{change}	Beta	F
Social Indicators	.68	.47	.47	.58	28.75
Community Perception Surveys	.76	.58	.11	.35	22.02

FIGURE 1

SUMMATIVE NEEDS ASSESSMENT RANKING
OF HIGH NEED CENSUS TRACTS

Census tracts falling in upper quartile of mental health need.